INTERNAL DRIVERS OF ENVIRONMENTAL PERFORMANCE. CASE STUDY: THE TRADING ACTIVITY

Florina Bran[1*], Ildiko Ioan[2] and Carmen Valentina Rădulescu[3]
[1) 2) 3)] The Bucharest Academy of Economic Studies, Romania

Abstract
Increasing environmental performance is one of the changes involved by sustainable development and became a condition of success in economic activities. Efforts invested in this direction are explained by a number of strategic advantages – operational eco-efficiency, reputation, strategic direction, risk management, human resources management, product differentiation - , which justifies economic suboptimal functioning on short term. Governmental policies contributed to the development of these advantages, but there still remain many unclear aspects regarding the reaction pattern of enterprises. The paper aims to address this area of uncertainty by analyzing the patterns that could become internal drivers of environmental performance in trading activity. Size, profitability and efficiency in the use of resources, identified by prior research as internal drivers of environmental performance, were not confirmed by the empirical analysis performed on a sample of companies with trading activities. The impact of changes in the conditions that allow participation in public procurement bidding, the way of evaluating environmental performance are possible explanations for these inconclusive results. Future research should address the relative importance of internal and external drivers, the possibilities to express environmental performance and inter-sector comparisons.

Keywords: sustainable development, environmental performance, proactive approach, trading, ISO 14 001

JEL Classification: Q56

Introduction

Accomplishing the strategic objectives of sustainable development supposes numerous and profound transformations in the economic and social life. Increasing environmental performance in enterprises' activities resulted as a key requirement in this respect. Its realization raises many questions considering the fact that environmental degradation is greatly due to the intensification of economic activities. Finding solutions for this contradictory situation became a real challenge for economic and other sciences, and

[*] Corresponding author, **Florina Bran** - florinabran@yahoo.com

therefore in the last decades a huge number of studies approached this topic. They produced valuable outcomes that became theoretical premises for the formulation and implementation of environmental policies and their implementation instruments.

Governmental intervention for environmental protection represents the initial option based on reasons related to the nature of problems, and also to their relation with economic mechanisms. Environmental issues are featured by a large size and a worsening trend in evolution, that makes solutions to be found at a level that allow noticing the interdependencies among different aspects (Rojanschi et al., 2006). Meanwhile, environmental issues are positively correlated with the intensity of economic activity because the price system does not fulfill the functions assigned to it by the theory of perfect competition, resulting in differences between private and social advantages and costs (Rojanschi et al., 1997).

Governments' environmental policies are formulated within a context that involves a certain level of uncertainty. Thus, Rojanschi and Bran (2002) show that many details are inevitably uncertain during the process of policy formulation, but these could be treated in a more advanced stage.

The activity of enterprises in a country is exposed to similar environmental regulations and taxes. Nevertheless, the way of treating environmental issues at this level is very different (Brammer and Pavelin, 2006). Thus, there could be identified situations when environmental issues are disregarded, treated at the border of legal requirements, or approached in a proactive manner. Companies from the first category take in account environmental issues only in the case of being involved in litigations related to legal lack of compliance. Others maintain themselves at the border of compliance, fulfilling legal requirements by obtaining environmental authorizations. The third category of enterprises treats environmental problems in a systematic manner, investing in measures that allow preventive actions, on the one hand, and influence legal context, on the other hand.

The different reaction of enterprises in handling environmental issues could be interpreted as one of the uncertainties that have to be considered in environmental policy elaboration. The paper aims to contribute to reducing this uncertainty by analyzing the influence of internal drivers on environmental performance in the case of enterprises with trade activities. Internal drivers will be expressed as characteristics of the enterprises.

Progresses in theory development on environmental performance of enterprises will be systematized in the first part of the paper, and then this conceptual framework will be translated in hypotheses development. These hypotheses will be tested on a sample made up from enterprises with trading activities in Bucharest that are certified for the implementation of ISO 14 001 standard regarding environmental management systems (EMS). The last part of the paper discusses the implications of the results on environmental policy formulation process.

1. Progresses in theory development for enterprises' environmental performance

Before analyzing the results obtained in the research of internal drivers of environmental performance we must consider several clarifications regarding the way of establishing the relevance of literature. These refer to the context in which environmental performance is treated and to the way of exploring environmental performance drivers.

The environmental performance topic of enterprises is treated, generally, within a wider context, represented by social responsibility commitments, which become, according to KPMG (2008), a mainstream business expectation. One of the key requirements of social responsibility is transparency addressed by the issuance of periodical reports. Therefore, there were also considered the results of studies regarding social responsibility and voluntary reporting.

In the exploration of internal drivers of environmental performance cannot be neglected the feed-back effect, respectively how the enterprises' characteristics are modified by increases in environmental performance, since these changes will become reasons or objections for decisions that support environmental protection. For example, high profitability could be a factor that predisposes an enterprise to increase its environmental performance due to the availability of resources needed for change. But, profitability could suffer a positive or negative modification after the change is enacted. The modification will become an internal driver or, on the contrary, a disincentive. Consequently, there were taken in account results of studies concerning both enterprise patterns as causes and as effects of environmental performance.

According to the theoretical perspective, which is adopted, the motivations for enterprises' interest in increasing environmental performance could be grouped in two categories: economic motivations and social and political motivations (Ioan, 2009).

Economic motivations result from interpreting environmental performance from the perspective of economic theory. According to some researchers (Gray et al., 1995) this theory is not appropriate for the research of environmental performance because its' main tenets (avoidance of any normative condition and free market) are in opposition with the need of environmental protection, that resulted from market failure. Despite this suspicion, and despite the inconclusive results (Ingram and Fraizer, 1980; Freedman and Wasly, 1990; Bewley and Li, 2000; Hughes et al., 2001)this perspective was not abandoned by other researchers. Their efforts were rewarded by proofs of positive association between environmental and financial performance (Al-Tuwaijri et al., 2004; Clarkson et al., 2007).

The social and political motivations were formulated from the theoretical perspective of political economy and enjoy an enhanced acceptability due to a more coherent theoretical foundation and to a solid support on the behalf of empirical research. Within this conceptual framework there could be distinguished the stakeholder theory and the legitimacy theory.

Stakeholder theory is a theory of organizational management of business ethics initially advanced by Freeman (1984). According to this theory the interest in increasing environmental performance is related to the stakeholders' requirements. The theory did not succeed in explaining the performance differences, especially regarding companies that operate in the same sector or in the same geographical area.

According to the legitimacy theory trading companies take in account, along with legal norms and economic aspects, the social norms. The theory is a contemporary version of the Social Contract Theory. Thus a company will adjust voluntarily its environmental performance if it perceives that there is an expectation from the community in this respect. The theory was examined in empirical studies that found conclusive evidence for the predicting potential on environmental performance.

2. Hypothesis development

Internal drivers of environmental performance are patterns of trading companies – size and organizational visibility, profitability, efficiency, pollution potential, ownership dispersion etc. – that make them likely to be involved in proactive approach of environmental issues. The research of these drivers allow some normative conclusions such as "large (more profitable, listed, with large pollution potential etc.) enterprises are more likely to be preoccupied to increase environmental performance".

In order to establish the internal drivers of environmental performance, there were selected a number of indicators that reflect the characteristics of the enterprises and their environmental performance. For each pattern indicator an expectation was stated within the context of prior results. The environmental performance indicator is the ISO 14 001 certificate. Thus, the expectations will be expressed as relative proportion of enterprises with certain patterns.

Size – environmental performance. The size of a company is frequently proposed as environmental performance driver (Branco and Rodrigues, 2008). Large enterprises are more likely to improve their environmental performance because they are more visible and more exposed to political pressures. This exposure induces the need to reduce the information asymmetry through voluntary communication, which on its turn becomes possible within the framework of integrated management for increasing environmental performance, respectively a management performed in accordance with the requests of the ISO 14 001 standard (Ioan et al., 2008). Results of social responsibility studies conducted in Romania (Vuță et al., 2007) indicate that large companies are more likely to adopt such practices. Therefore we are expecting that enterprises with higher turnover and with larger number of employees to be predominant.

Resources – environmental performance. Mohn (2006) suggests that the linkage between environmental performance and resources is intermediated by the strategic advantages brought by the proactive approach. Nevertheless, on short term, the proactive approach brings in the perspective of suboptimal economic functioning (Brammer and Pavelin, 2006) and increased resource consumption (Rusu, 2003). These perspectives are more likely to be accepted by companies that have financial surpluses being featured by the so called "organizational slack". Such situations will occur in companies with high profitability and increased efficiency. The variegated evidence of positive correlation between environmental and financial performances (Al-Tuwaijri et al., 2004; Clarkson et al., 2007) is also supportive in this respect. Thus, we would expect that companies with higher profitability and efficiency will be predominant in the sample.

3. Data collection and methodology

Environmental performance could be measured using various indicators. Within the framework of this study, we consider ISO 14 001 as proxy for environmental performance based on the argument developed by Sinkin et al. (2008). According to them ISO 14 001 certification is an indication of an eco-efficient company. Moreover, Mohn (2006) shows that eco-efficiency is a potential proxy for a performing management. On the other hand, King et al. (2004) concluded that ISO 14 001 certification is not necessarily a measure of environmental performance. However, by its content – standard practices and procedures

used by companies – it could be interpreted as a signal of the commitment toward improved environmental performance, respectively a proactive environmental behavior.

The expectations stated above will be tested using a sample of 70 companies that are ISO 14 001 certified and have trade as activity type according to the CAEN classification. The sample was constructed using random numbers. Information regarding certification was gathered from the database of Romanian Society for Quality Assurance (SRAC), which is the largest company accredited in Romania for certifying the implementation of ISO 14 001 standard. Data regarding company characteristics were obtained from the Public Finance Ministry's database and they refer to 2006. This year was chosen in order to maintain wider the empirical base, since the number of companies that uploaded data in this year is larger than in 2007, the last year available at this source.

Enterprise characteristics will be measured using a set of indicators selected based on the findings of prior research. Thus, the size of the company will be quantified using two indicators: turnover and average number of employees (Işfănescu and Robu, 2002). Resources availability will be measured by an indicator of profitability and an indicator of efficiency (Cojocaru and Cojocea, 2004). These are commercial profitability rate (calculated as ratio between profit and turnover), respectively labor productivity (calculated as ratio between turnover and average number of employees).

For the identification of internal drivers of environmental performance will be used the methods of descriptive statistics. The predominance of certain company patterns in the sample will be expressed by the position of central tendency indicators against the limits of variation, and also as frequency distribution.

4. Results and discussions

As it is indicated by the descriptive statistics presented in table no. 1, none of the expectations is confirmed by empirical data. Thus, for each of the four indicators there is a prevalence of lower values, since the mean and the median are closer to the lower limit of the interval. Moreover, the median is lower than the mean, and its indication could be considered more relevant since the data are quite dispersed. Given these inconclusive results, the sample was restricted to small and medium sized enterprises (SMEs), but this did not bring significant changes.

Table no. 1: Descriptive statistic of size and resource indicators

Indicator	Turnover (million lei)	Average number of employees (persons)	Commercial profitability rate (%)	Labor productivity (thousands lei/employee)
Minimum	0.12	10.00	0.25	49.63
Maximum	64.36	953.00	35.79	1859.88
Mean	3.39	145.53	8.71	387.04
Median	0.79	57.00	6.79	300.96
Variance	68.21	41751.33	48.86	136395.16
Standard deviation	8.31	206.08	6.99	369.32

Source: calculations based on data from Public Finance Ministry

The analysis of frequency distribution for size and resource indicators highlights the prevalence of small values. Thus, for the enterprise size expressed through turnover the class with the lowest values comprises most of the sample enterprises, its frequency being of 63% (Figure no. 1).

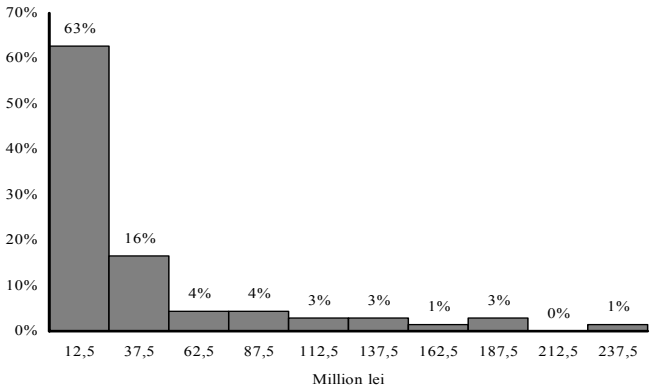


Figure no. 1: Frequency distribution for values recorded by turnover

The situation is similar to the average number of employees. (Figure no. 2)

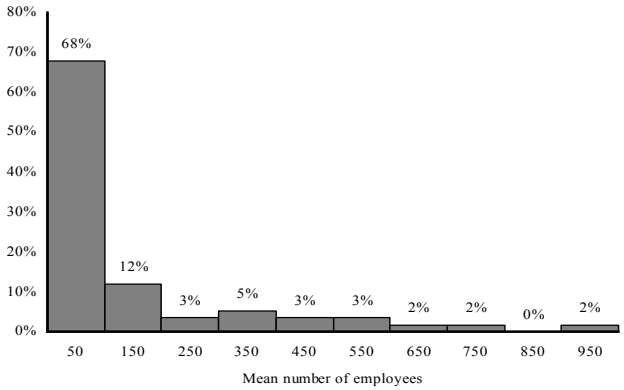
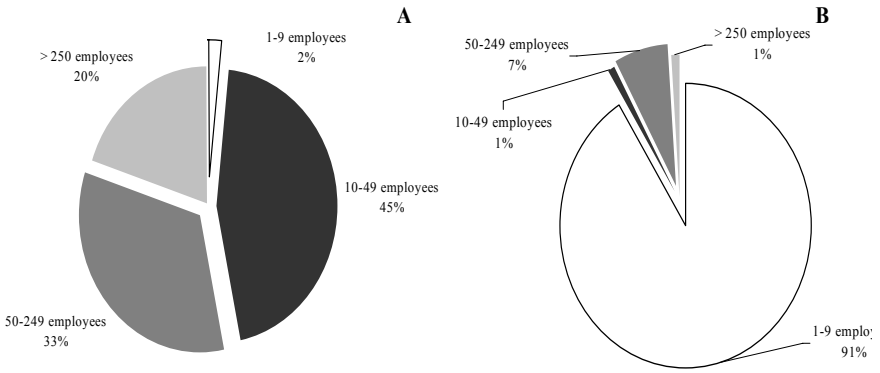


Figure no. 2: Frequency distribution for values recorded by average number of employees

On the other hand, comparing the sample structure with the structure of commerce and service enterprises at national level according to the number of employees (figure no. 3) there could be noticed a number of differences that tend to support the hypothesis regarding the relation between environmental performance and size.



Source: own calculation Source: INS

Figure no. 3: Structure of sample enterprises (A) and at national level (B) according to the mean number of employees

In the sample best represented are the enterprises with 10-49 employees (45%), while at national level predominant are enterprises with 1-9 employees (91%). The fact that the higher proportion of enterprises with more employees is larger for the sample could indicate that the larger enterprises are more likely to support the increase of environmental performance. In other words, the working hypothesis regarding the relation between the enterprise size and its environmental performance is confirmed.

For resource indicators, although small values are prevalent these are spread in more classes. (Figure no. 4 and Figure no. 5)

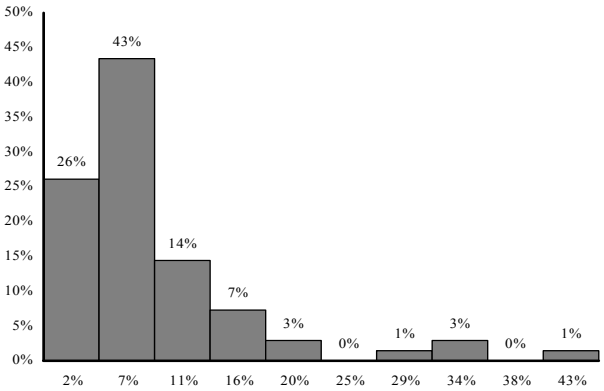


Figure no. 4: Frequency distribution for values recorded by commercial profitability rate

Given these little conclusive results for the turnover, the sample was restricted to small and medium sized enterprises (SMEs), but this did not bring significant changes, but this change did not bring significant modifications in frequency distributions.

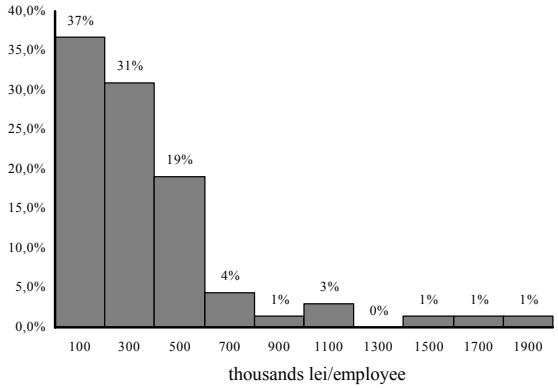


Figure no. 5: Frequency distribution for values recorded by labor productivity

The above presented results confirm only some of the expectations, but they allow some observations based on their comparative analysis. The frequency distribution and the level of dispersion differentiate between size and resource indicators. Thus, for size indicators the lowest class of values accounts for more than half of the records (63%, for turnover; 68% for average number of employees, while for resource indicators more than half of the records is gathered by the first two classes. Further, the coefficient of dispersion is above 100% for size indicators (245% for turnover; 142% for average number of employees), and below this level for resource indicators (80% for commercial profitability rate; 95% for labor productivity).

The little conclusive outcomes of the empirical analysis could be explained by the fact that external drivers of environmental performance are stronger than the internal ones. The greening of public procurement, for instance, could be one of these drivers (Popa and Bran, 2008). Thus, trading companies are requested to prove the implementation of integrated management systems, and the most common way of doing so is to be ISO 14 001 or EMAS (Eco-Management and Audit Scheme) certified. Another explanation could be related to the expression of environmental performance and the objection advanced by King et al. (2004). ISO 14 001 certification is not a guarantee of environmental performance; it only expresses a commitment toward it. Using specific environmental indicators, such as waste generation, emission inventory, energy use, could lead to outcomes that are in line with prior findings.

Although the results of empirical analysis are not supportive for prior findings and theories, they give a valuable insight for environmental policy elaboration. Thus, it resulted that small companies in the trading sector, which has a low environmental liability, are committed toward environmental performance. If this distribution is confirmed by impact studies on green public procurement for other more polluting sectors it results in powerful evidence for this policy instrument's effectiveness.

Further, the prevalence of small and low resource availability companies in the sample could indicate that environmental commitments are not taken seriously and they could be only green wash practices (difference between disclosed and real environmental performance). If this would be confirmed, policy implication would be the intensification of environmental information campaigns and changes in public procurement schemes regarding how environmental commitments are proven.

Conclusions

Increasing environmental performance became a more and more prominent requirement in all fields. Its accomplishment is made within the framework of changes promoted by governmental environmental policies and it is still featured by many uncertainties. The paper aimed to contribute to reduce these uncertainties by identifying the internal drivers of environmental performance in companies that deploy trading activities. In this respect a number of hypotheses developed within the framework of prior theories and empirical findings were tested on a sample of ISO 14 001 certified companies that deploy trading activities.

The empirical results are not supportive for all hypotheses. The hypothesis regarding the relation between size expressed as number of employees and environmental performance are confirmed by making a comparative analysis between the structures of enterprises with trade activity in the sample and at national level. Thus, at national level there are predominant enterprises with 1-9 employees (91%), while in the sample, the largest proportion is of enterprises with 10-49 employees (45%).

The explanations for these little conclusive results could be the more powerful influence of external drivers, or the expression of environmental performance. Although prior findings were not confirmed, the results have some valuable policy implications. Thus, greening public procurement could be an effective environmental policy tool. On the other hand, the prevalence of small companies in the sample could indicate that there is a need for measures to prevent green washing practices.

Further research would be valuable for environmental policy development by making a comparative analysis between internal and external drivers of environmental performance expressed with specific indicators and by evaluating impact of greening public procurement in different sectors.

References

Al-Tuwairi, S.A., Christensen, T.E. & Hughes, K.E., 2004. The relations among environmental disclosure, environmental performance, and economic performance: A simulateneous equation approach. *Accounting, Organizations and Society*, 29 (5-6), pp. 447-471.

Bewley, K.. & Li, Y., 2000. Disclosure of environmental information by Canadian manufacturing companies. A voluntary disclosure perspective. *Advances in Environmental Accounting and Management*, 1, pp. 201-226.

Brammer, S. & Pavelin, S., 2006. Voluntary Environmental Disclosures by Large UK Companies. *Journal of Business Finance & Accounting*, 33 (7-8), pp. 1168-1188.

Branco, M.C. & Rodrigues, L.L., 2008. Factors influencing social responsibility disclosure by Protuguese companies. *Journal of Business Ethics*.

Clarkson, P.M., Li, Y., Richardson, G.D. & Vasvari, F.P., 2007. Revisiting the relation between environmental performance and environmental disclosure. An empirical analysis. *Accounting, Organizations and Society*.

Cojocaru, C.C. & Cojocea, A.G., 2004. *Analiză economico-financiară*, Bucureşti: Editura Economică.

Freedman, M. & Wasly, C., 1990. The association between environmental performance and environmental disclosure in annual reports and 10 Ks. *Advances in Public Interest Accounting*, 3, pp. 163-171.

Freeman, R.E., 1984. *Strategic Management: A Stakeholder Approach*. Boston: Pitman Publishing Inc.

Gray, R., Kouhy, R. & Lawers, S., 1995. Corporate social and environmental reporting. A review of the literature and a longitudinal study of UK disclosure. *Accounting, Auditing & Accountability Journal*, 8 (2), pp. 47-77.

Guthrie, J. & Parker, L.D., 1989. Corporate Social Responsibility: a rebuttal of legitimacy theory. *Accounting and Business Research*, 89 (76), pp. 343-352.

Hughes, S.B., Anderson, A. & Golden, S., 2001. Corporate environmental disclosures: Are they useful in determining environmental performance?. *Journal of Accounting and Public Policy*, 20, pp. 217-240.

Ingram, R.W. & Frazier, K., 1980. Environmental performance and corporate disclosure. *Journal of Accounting Research,* 18 (2), pp. 614-622, 1980.

Ioan, I., 2009. Comunicarea performanțelor de mediu. *Calitatea – acces la succes*, 6, 2009.

Ioan, I., Rădulescu, C.V. & Moga, T., 2008. Characteristics of voluntary environmental reporting made by the biggest companies in Romania. in Vol. *Ecological performance in a competitive economy*, Supplement of jurnal *Calitatea – acces la success*, Vol. I, 94.

Işfănescu, A. & Robu, V., 2002. *Analiză economico-financiară*, Bucureşti: Editura ASE.

King, A., 2004. The ISO 14 001 Management Standard: Exploring the Drivers of Certification. în Proceedings of *Corporate Environmental Behavior and the Effectiveness of Government Interventions*, section IV Evaluation of voluntary programs, pg. 1-42.

KPMG, 2008. *KPMG International Survey of Corporate Responsibility Reporting 2008*.

Mohn, W.H., 2006. *Green and profitable? The potential returns to good environmental management.* working paper University of Oxford.

Popa, C. & Bran, F., 2008. Achizițiile publice verzi. *Calitatea – acces la succes*, 9.

Rojanschi, V., Bran, F., Diaconu, G., Iosif, G.N. & Toderoiu, F., 1997. *Economia protecţiei mediului.* Bucureşti: Editura Tribuna Economică.

Rojanschi, V. & Bran, F., 2002. *Politici şi strategii de mediu.* Bucureşti: Editura Economică.

Rojanschi, V., Bran, F., Grigore, F. & Ioan, I., 2006. *Cuantificarea dezvoltării durabile*. Bucureşti: Editura Economică.

Rusu, C., 2003. *Managementul schimbării*. Bucureşti: Editura ASE.

Sinkin, C., Wright, C.J. & Burnett, R.D., 2008. Eco-efficiency and firm value. *Journal of Accounting and Public Policy*, 27, pp. 167-176.

Tilt, C.A., 1994. The influence of external pressure groups on corporate social disclosure. *Accounting, Auditing & Accountability Journal*, 7 (4), pp. 47-72.